

Relativity of observer splitting formalism and some astrophysical applications"

ABSTRACT

In this talk, I will present a fundamental method in General Relativity, called relativity of observer splitting formalism, based on the full orthogonal splitting of a test particle motion relative to an observer. This method is very useful to coherently distinguish the contributions coming from the gravitational field, due to the presence of a massive object, with those coming from the accelerated motion of the observer, describing the phenomenon.

This technique, developed by many authors like Cattaneo, Wheeler, De Felice, Abramowicz, Bini, Geralico, Jantzen, consists in separating the test particle motion relative to an observer in local rest space and local time direction ($4=3+1$); then the local rest space is divided in traverse and longitudinal components ($3=2+1$). With this technique it is possible to model several astrophysical problems.

In particular, I will show three applications related to some of my recent publications, dealing with accretion disc physics and radiation processes.

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